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ABSTRACT

The scope and place of population education in our present educational system, together with current organized activities in this field, are summarized in this pamphlet. Population education is defined as the process by which the student investigates and explores the nature and meaning of population processes, population characteristics, the causes of population change, and most important, the consequences of these processes, characteristics, and changes for himself, his family, his society, and the world. The needs of population education are assessed as well as recommendations submitted by the Commission on Population and the American Future. In reviewing the activities and programs of population oriented groups, brief descriptions of their population education efforts are given for The Population Council; Population Reference Bureau; Population Education Project, Teachers College, Columbia University, New York; Population Curriculum Study, University of Delaware; Population Education Project, Indiana University; Center for Studies in Education and Development, Harvard University, Massachusetts; Center for Population and Environmental Education, University of North Carolina; and an ecology/ population program at Weston (Massachusetts) High School. (BL)

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Population Education

What Is Population Education?

Population materials are included, and have probably always been included, in the elementary and secondary school curriculum in the United States. Teachers have dealt with the migrations to open the American west, with population size and distribution here and overseas, and with the relationships between the size of populations, both animal and human, and their resource base, particularly food. This teaching of population does not, however, constitute a population education program.

Population education is defined as the process by which the student investigates and explores the nature and meaning of population processes, population characteristics, the causes of population change, and, most important, the consequences of these processes, characteristics, and changes for himself, his family, his society, and the world.

The goal of population education is to assist students to conceptualize the relevance of population for themselves, to assist them thereby to make rational and responsible individual and collective decisions about population matters utilizing appropriate information and analytic skills. For the family the goal can be stated as responsible fertility behavior, for the community, as rational and responsible decisions on population and public policy.

Population education is meant to educate, not to propagandize or indoctrinate. Population education views population not as a "problem" to be solved, but as a "phenomenon" to be understood. The goal of understanding is to provide the intellectual underpinning for responsible action. Population education programs must also involve students in an exploration of their own values and attitudes.—Adapted from *Population and the American Future—Research Papers*, volume vi, *Aspects of Population Growth Policy*, Washington, D.C.: U.S. Government Printing Office, 1972.

Needs in Population Education

If a consideration of population problems is to be built firmly into the educational structure, there is much work that needs to be done.

While one definition of population education is given earlier in this issue, there is no universal agreement on this or another definition. There is a clear need to define and conceptualize the field.

There is need to inform the public and particularly educational leaders about the nature of population problems and about population education and to enlist their support for and assistance in developing programs of population education.

There is need to develop classroom materials, including texts, audiovisual materials, games and simulations, and other teaching and learning devices. This issue provides reports from several projects doing just this but much more needs to be done. Workshops and inservice programs for the development of materials constitute an effective way to train the teachers to teach the materials.

In addition to teacher education through developmental projects, much more must be done through preservice and inservice population education programs. These programs also need the attention of thoughtful scholars in the field if they are to be successful.

Model programs for schools of different types and in different settings and locations must be developed. Such

The inspiration for this issue came from the many helpful conversations that the staff members of the AAAS Commission on Science Education have had during the past two years with Stephen Viederman, Assistant Director, Demographic Division, The Population Council, New York, New York, and especially from his report prepared for the Commission on Population Growth and the American Future. The report, entitled "Population Education in the Elementary and Secondary Schools of the United States,"* is the source of the definition of population education, the statement of needs in population education, and information on most of the projects reported. In a real sense, Mr. Viederman has served as visiting editor for this issue, from the planning through the final editing stage.

This special issue of *Science for Society: Education Review* was made possible by a grant to AAAS from the Population Council.

**Population and the American Future—Research Papers*, volume vi, *Aspects of Population Growth Policy*, Washington, D.C.: U.S. Government Printing Office, 1972.

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programs offer effective means of learning about the processes of population education and how children and young people learn about critical social problems of relevance to them as individuals.

Research in population education and ways of evaluating population education programs is essential to progress in this field of education as in all fields, but innovative and model programs and developmental work cannot wait for research findings.

One of the greatest needs of all is for communication among all persons concerned with population and population education: theorists, researchers, practitioners, educators in related fields, demographers, population specialists, and teachers in schools.—Adapted from *Population and the American Future—Research Papers*, volume vi, *Aspects of Population Growth Policy*. Washington, D.C.: U.S. Government Printing Office, 1972.

The Commission's Recommendations

The Commission on Population and the American Future submitted the following recommendation as part of its report, *Population and the American Future*, published by GPO and the New American Library:

> In view of the important role that education can play in developing and understanding of the causes and consequences of population growth and distribution, the Commission recommends enactment of a Population Education Act to assist school systems in establishing well-planned population education programs so that present and future generations will be better prepared to meet the challenges arising from population change.
>
> To implement such a program, the Commission recommends that federal funds be appropriated for teacher training, for curriculum development and materials preparation, for research and evaluation, for the support of model programs, and for assisting state departments of education to develop competence and leadership in population education.

Some of the supporting arguments for this recommendation quoted from the Commission's report are:

> If Americans now and in the future generations are to make rational, informed decisions about their own and their descendants' future, they must be provided with far more knowledge about population change and its implications than they now possess.
>
> Population education involves more than simply learning the size of different populations. Ideally, it includes some elementary knowledge of the arithmetic of population growth and the growth of metropolitan areas and suburban decentralization. A program of population education should seek to present knowledge about population processes, population characteristics, the causes of population change, and the consequences of such change for the individual and for the society.
>
> The goal of population education is to incorporate concepts and materials related to population into the school curriculum in order to educate future generations, enabling them to make more intelligent decisions with regard to population matters.

Education on Population Problems

(A statement approved by the AAAS Commission on Science Education, October 1972.)

In recent years, there has been a marked upsurge of interest and concern about problems relating to the size and density of human populations. Many thoughtful persons feel that the rapid increase of human populations across the world presents perhaps the greatest threat ever faced by man.

Today the United States shows a markedly reduced rate of population increase—it may even, for now, be approaching zero population growth. But there are two important caveats. First, even if a *current* rate of growth approaching zero should be achieved, it will be a generation before the practical effect of this will become apparent, because so large a population is currently entering reproductive age. Second, reproductive rates have a way of altering suddenly—as they have done in the past—to the distress and confusion of demographers. Thus, great as our current achievement certainly is, it is not to be taken for granted.

Furthermore, there is widespread evidence that, despite scattered gains in the "population battle" across the globe—some of them indeed notable—there is little evidence of amelioration of the problem on a major scale on a worldwide basis. The problems associated with population size are almost certain to remain with us for generations, and may well intensify markedly. The current level of concern may diminish; the problems will not. It seems important, therefore, that a consideration of these problems be built firmly into the educational structure.

The Population Council

The Population Council is an organization established in 1952 for scientific training and study in population matters. It endeavors to advance knowledge in the broad field of population by fostering research, training, and technical consultation and assistance in the social and biomedical sciences.

The Council's interest in population education dates to the mid-sixties when Sloan Wayland, Teachers College, Columbia University, was appointed consultant. Primary attention was focused on school education in the developing world until 1969 when a full-time staff member, Stephen Viederman, was appointed. Since then activities have broadened to include the United States, as well as an interest in non-formal education.

The Council's program interest can be subsumed under three headings:

1. Understanding of the process by which population education is introduced into the educational system, and efforts to expedite that process. Activities include support for Wayland to prepare a guide to the development of population education programs in the schools, with primary focus on the developing world; financing of a study being done by the Bureau of Applied Social Research at Columbia University on the barriers to the introduction of population into the undergraduate curriculum, which has relevance for teacher preparation; and the support of an experimental summer workshop at Cornell University to develop audiovisual and other materials to be tested and disseminated in cooperation with the National Council of Associations for International Studies for use in senior high and college classes.

2. Understanding of the knowledge base of population education—both in terms of the content of population education and in terms of the process of population learning.

Activities include support of research by Indiana University on the knowledge and attitudes of senior high students in preparation for curriculum development; and the financing of a study by the University of Utah on the formation of family size preferences of young people. A project is now being developed to consider the content of population education.

3. Reviewing and communicating the state of the field to relevant audiences. Activities have included support of a newsletter directed to teachers of undergraduates, *Teaching Notes on Population*, editing and providing partial support for the special population education issue of *Social Education* (April 1972), and for this issue of *Science for Society: Education Review*; and preparation of the report "Population Education in the Elementary and Secondary Schools of the United States" for the Commission on Population Growth and the American Future.

Publications available from the Population Council, 245 Park Avenue, New York, New York 10017, include a number of serial publications on population/family planning, Country Profiles, and occasional papers and books.—Stephen Viederman, *Population Council.*

Population Reference Bureau

The field of population education has evolved as the significance of population issues in the contemporary world has become more apparent. This is not surprising. A characteristic American response to such social issues is to mobilize education programs.

Almost every facet of human life is affected by the size, distribution, and composition of human population. Ignorance about the demographic dimension of life, and failure to control those dimensions have been cited as rationales for population education. However, as long as people think that the primary rationale is one of changing reproductive behavior leading to the hallowed state of zero population growth, population education won't likely go very far or last very long in this country. Moreover, it is questionable whether this kind of effort should be called "educational."

In existence since 1929, the Population Reference Bureau has lived through, and responded to, public discoveries of a "baby bust" in the '30s, a "baby boom" in the early '50s, and now a "birth dearth" in 1972. These transitory contrary perceptions yield an important lesson: Population education goes beyond the communication of current demographic events which may or may not be perceived as problems. It involves more than simply learning the size of different populations. The ideal programs in population education will go much further to present knowledge about population processes and characteristics, the causes of population change, and most importantly, the consequences of such change for each individual and for society.

In pursuing such an ideal through the school systems of the United States, PRB attempts to change what goes on between student and teacher. Its efforts fall into two general lines of activity: (1) preparing and disseminating educational materials to teachers and students, and (2) facilitating communications among educators, school administrators, and others interested in U.S. population education programs.

1. *Development of educational materials.* During 1972 the Population Reference Bureau published the third in its series of auxiliary textbooks. Designed for high school and junior college students *The World Population Dilemma* was published in July and should be reviewed in educational journals during the coming months. The annually published *World Population Data Sheet* presenting demographic data on all countries has been used widely as a basic reference in high schools, junior colleges, and universities throughout the country and abroad. A similar tabulation for the United States is currently under preparation, and will present state population data. The Bureau also publishes a series of wall charts depicting historical demographic data, trends in fertility and mortality rates, and so on. These, along with sets of 35 mm slides that have been made from such PRB publications as the *Population Bulletin* and *Population Profile*, have been used widely for class and lecture purposes. The acting director of the Bureau's population education program prepared a comprehensive assessment of teaching materials available in the United States. A brief version of this report entitled "Sources and Resources" was published in the April 1972 issue of *Social Education* which was circulated to 25,000 teachers throughout the country. Reprints of this article are available from the Bureau.

More recently the Bureau has prepared written materials to be used in conjunction with the official film report on the work and findings of the Commission on Population Growth and the American Future. Chaired by John D. Rockefeller, the Commission prepared an excellent report containing factual information and discussion that represents a significant educational resource. By preparing written material to enhance the educational use of the film, it is hoped that schools can be stimulated to use the Commission's work as classroom material. A short *Viewer's Guide* has been prepared for distribution prior to the nationwide broadcasting of the hour-long film on educational TV stations. A longer *Study Guide* for classroom use will be available in February 1973. Until March 15 the guide will be available at no charge, except postage, in multiples of 100 copies. The successful use of these learner-centered activities and related audiovisual material in population education represents an important alternative to the traditional textbook.

2. *Providing a communications link among population educators.* The principal new educational program inaugurated by the Population Reference Bureau in 1972 was *Interchange*. This newsletter designed for teachers, school administrators, and curriculum development specialists has three basic objectives: (a) to promote better understanding by educators of current population developments and problems; (b) to provide information on training opportunities and teaching materials; and, (c) to outline instructional activities that can be used by classroom teachers to illustrate population subject matter. The mailing list of 10,000 names has been carefully prepared to assure that the copies get into the hands of those who can best utilize this information. Starting in 1973, *Interchange* will be available on a subscription basis.

This past spring, the Bureau published the proceedings of the National Conference on Population Education

which it had convened in the Washington area in the fall of 1971. This conference provided an opportunity for long needed communication among the many persons and organizations actively shaping the field of population education. The published proceedings serves not only as the permanent record of a significant conference, but also as a vehicle for presenting, in summary form, the conceptual and technical foundations on which population education programs and materials can be built.—Kathryn Horsley, *Staff Associate for Population Education, Population Reference Bureau, Inc.*

Teachers College Population Education Project

The Population Education Project at Teachers College, Columbia University, is preparing a book on population education for middle school science and social studies teachers. In pursuit of this objective, we have conducted a year-long graduate seminar whose members consist of professors and doctoral research associates from the Departments of Social Studies, Science, and Philosophy and the Social Sciences; biological and social scientists from outside the college; and educators from the New York State Department of Education. A series of papers exploring population education from a number of different perspectives has been presented and discussed. Project members have also contributed articles to the April 1972 issue of *Social Education* devoted to population and have made presentations to several professional meetings.

A number of interesting problems have arisen in connection with our investigations, problems to whose analysis and solution we hope that our book will make a contribution. One is the problem of the creation of a new field of population studies which is more than a sum or a combination of the major disciplines or areas concerned with population: demography, biology, sociology, geography, human reproduction, and medicine. Usually school curricula are drawn from disciplines or fields already well established. The circumstances that population studies are, or may be, coalescing into a field at the same time as the curricula are being created makes the problems especially interesting and challenging.

A second major problem is the relationship of population education to other problem-oriented curricular topics, like ecology, which exhibit similar characteristics. These include a focus on values, a fusion or combination of various disciplines, a concern with both public and personal behavior, a consideration of long-term consequences, and sharp and often bitter divisions of opinion over both analyses and remedies. Together they constitute a new problem-centered curricular movement arising in both the social studies and science. One of our tasks is to help teachers identify and deal with these questions in educationally valid ways.

Our work in these areas will, we hope, be useful in providing approaches not only to population studies and population education but to the illumination of general classes of problems through consideration of specific examples of each.—Hazel W. Hertzberg, *Co-Director, Population Education Project, Teachers College, Columbia University.*

Population Curriculum Study, University of Delaware

Recognizing the need for increased awareness of population and environment issues, the Population Curriculum Study was established at the University of Delaware in the summer of 1968. The following positions were adopted:

The program should be multidisciplinary because of the complexity of population-environment problems. All school disciplines can have roles in developing knowledge and understanding in the field.

The program should include kindergarten through twelfth grade because concepts and attitudes begin forming early in the minds of children.

The program should have a problem-solving emphasis because it is only through the informed decision-making powers of our citizens that democratic solutions to our problems can be achieved.

It was immediately apparent that a conceptual scheme was needed as a framework for creative curriculum work, and the theme, "Man is part of a natural system, the earth, and is ultimately subject to its limits," was adopted. This was further expanded in teacher workshops to include the following major concepts:

I. The earth is a finite natural system.
To show that there are limits.

II. The evolution of man resulted in a capacity for culture.
To relate man to the natural system.

III. The natural system influenced the evolution of human culture.
To indicate man's dependence on the natural system.

IV. Cultural evolution led to dominance of the environment.
To describe man's uniqueness and power.

V. The activities of human populations may lead to conditions restricting the quality of life.
To develop awareness of population-environment problems.

VI. By planning within the natural system, a life of acceptable quality can be provided for all people.
To suggest some alternative.

These major concepts were then expanded into a system of subconcepts classified loosely into three schoolgrade levels: K-4, 5-8, and 9-12.

Concurrently, a comprehensive library for population-environment studies with annotated lists of books, periodicals, and films was prepared.

Then, with a conceptual scheme and a rich collection of resources, the Population Curriculum Study began the preparation of teaching materials for the attainment of the concepts of the scheme. The inventory now contains over 300 "teaching resource packets." The first editing of the packets is now under way and regional teachers are being invited to use and evaluate the materials. The developmental work will continue indefinitely. Much more teaching material is needed in the K-4 group and in Sections I, II, III, and IV. It was considered essential to develop concepts V and VI first because of the relative lack of treatment of those areas in existing programs.

It is proposed that the materials be used in at least three distinct ways:

1. Ideally, the conceptual scheme and the collection of teaching materials or any other collection of materials should be used in a school or school district effort to *infuse* population-environment studies into all school subjects. It could work this way.

All participating teachers will read through the conceptual scheme initialing those concepts they consider to be their teaching responsibility. A school coordinator will then prepare a copy of the conceptual scheme for each teacher showing the teaching responsibilities as the teachers see them. Thus, each teacher will *identify his role as he sees it* and will also be able to see where other teachers consider themselves to have similar or identical responsibilities. The door is open for cooperation.

Now if teachers want to try materials from the collection, the teaching resource packets can be identified in the inventory by their concept number and withdrawn for use. In this way the scheme provides for identification of those concepts not included among acknowledged teacher responsibilities and later could serve as a base for evaluation of the school program and of teacher-student achievement. To make the school program more complete, these "orphan" concepts can now be adopted by one or more of the faculty. The conceptual scheme also will serve as a guide to *continued* curriculum development by any or all interested teachers or other persons or agencies.

2. The conceptual scheme could also be used as a syllabus for a separate course. The course would probably be taught by one teacher as an elective attracting only a part of the student body. Some of the advantages of the multidisciplinary approach would be lost.

3. The conceptual scheme and teaching materials could also be used as a source of material for the popular new mini-courses—these courses are usually not clearly integrated into any scheme and student contact with them would probably be haphazard. However, short courses might be useful as *advanced* studies in population-environment issues. In any case, the conceptual scheme would again be useful in articulating such a fragmentary program.

A statewide consortium has been formed by the Delaware Conservation Education Association involving educational institutions at all levels, the state government, county and local planners, private organizations, and industry. The conceptual scheme of the Population Curriculum Study has been adopted as a framework and the participation of all segments of the community is being solicited. We shall see if cooperation on such a broad base can work not only for school programs but also in various public programs. The potential of the consortium for the growth of population-environment awareness in our society is tremendous.—R. W. Stegner, *Director.*

Indiana University Population Education Project

The Indiana University Population Education Project is concerned with three aspects of population education. These are (1) the systematic development and dissemination of curriculum materials dealing with population; (2) research into the process by which population-related knowledge and attitudes are acquired; and (3) training population educators in the techniques of systematic curriculum development. Of these three areas of interest, the first activity is the major area of interest and of activity for the project at present.

With the aid of grants from the Population Council and the Office of Environmental Education, PEP has been able to plan and is currently producing a six-week instructional unit on population. The unit, which is designed primarily for use in the social studies curriculum, approaches the study of population from a social science perspective that seeks to accomplish three broad goals:

1. To provide students with a broad understanding of population issues.

2. To develop in students an appreciation for the value and limitations of social science as a mode of inquiry into population issues.

3. To aid students in acquiring skills and developing strategies for identifying and dealing with the knowledge and value questions inherent in individual and societal decisions relating to population.

Planning for the unit spanned a period of twelve months. During this time an extensive "needs assessment" was conducted. The needs assessment included surveying the knowledge and attitudes of over 700 high school students in regard to population issues, knowledge about social science inquiry and process skills, and attitudes toward various instructional techniques. Consultations and discussions with a variety of subject-matter experts, students, and teachers were also held as part of the needs assessment. From these activities an instructional blueprint was generated that listed the objectives to be accomplished and suggested an approach that might lead to their attainment.* Activities over the coming twelve months will focus on implementing the approach described in the blueprint. During this time instructional materials will be produced, field tested in a number of classrooms, and, where required, revised. Once the materials are able to demonstrate ability to produce satisfactory levels of learning, they will be offered to commercial publishers for distribution.—Jerry L. Brown, *Director.*

Activities in Population Education at Harvard

The Center for Studies in Education and Development (CSED) of Harvard's Graduate School of Education has been active in population education since 1967 when it assisted in a pilot population education project in the schools of Cali, Colombia (South America). Training and research at CSED in population education focuses on research, planning, administration, and evaluation of population education programs. Both school and nonschool** population education programs are covered but special

*"A Plan for an Instruction Unit on Population Dynamics" is the title of a report prepared by Jerry L. Brown, November 1971, and is available from Dr. Brown at Indiana University.

**Nonschool education organizations are adult education, literacy, community development, agricultural extension, and so on.

emphasis is given to nonschool programs in developing countries. Training leads to the degree of Doctor of Education in Administration Planning (with a specialization in population education).

Training and research in population education at CSED is coordinated by David Kline (lecturer and research associate). Kline is a social psychologist/educator with specialties in research and evaluation methods and experience with the Peace Corps before coming to Harvard. He has consulted on the planning and evaluation of population education programs for Pathfinder, AID, and the Ford Foundation in Indonesia, the Philippines, Turkey, and Colombia and has written several articles on population education. Last summer he was the co-director of a workshop to train program development specialists in population education held at the East-West Center for mid- to high-level personnel from Indonesia, Malaysia, the Philippines, and Thailand. Kline was in charge of nonschool population education at the workshop. Another faculty member with experience in population education is Russell Davis (senior professor of education and development). Davis has consulted on population education for Pathfinder and AID in Turkey, Iran, and India. Other faculty members with an interest in population education are Noel F. McGinn (associate professor of education) and Charles Myers (assistant professor of education).

In May of 1972 CSED convened a two-day seminar on the topic "Issues in Population Education." In attendance were representatives of the major U.S. universities and national and international funding agencies active in population education. Background papers for the seminar were taken from a course on population education given at CSED. Issues discussed were: the definition and objectives of population education, content of population education, techniques of population education, ethics of population education, planning and evaluation of population education programs, and the organization and administration of population education programs.

For further information about the activities in population education at CSED write: Center for Studies in Education and Development, Larson Hall 500, Harvard University, Appian Way, Cambridge, Massachusetts 02138.—David Kline, *Lecturer and Research Associate.*

Center for Population and Environmental Education, University of North Carolina

One of the projects currently under way at the Center is the development of a short course in "population awareness" for K-12 classroom teachers to be offered in the preservice and inservice setting. The course is being prepared by Lane and Wileman and uses a self-instructional approach to teacher training in population education.

This short course is intended to provide the teacher with an understanding of basic population concepts. One or more concepts in each of the following areas will be treated: (1) basic demographic terms; (2) man-woman-family; (3) population size and standards of living at the family level; (4) population and the environment (5) population and the economy; (6) population policies and programs in this and other countries; (7) the growing personal and collective effect of the population phenomenon.

Audiovisual materials are being designed to aid in the learning. A variety of materials will be developed for the seven areas. The results of the project will include a set of prototypic materials organized into a course and ready for field testing.

This product will be designed to be used by individuals or small groups without requiring the presence of a teacher. The experience will allow the learner to participate as well as receive feedback. The learner will proceed through the experience at his own rate.

The course is also designed to illustrate a variety of teaching methods. The learner, as a potential or actual teacher in other settings, needs to experience new ways of teaching and learning in an interdisciplinary field like population education that involves a wide range of age groups. Each of the seven population topics therefore will be treated with a different teaching strategy.

In the state of North Carolina inservice education of teachers is the responsibility of the local school system. More often than not the local school system turns to its local higher education neighbor for help. In the case of population education, the local junior college, community college, or technical institute is usually not well prepared to offer assistance. With this packaged self-instructional short course, the community college system will be in a position to provide help. The course could be offered for a minimum of one hour's academic credit.

Certification of teachers is a shared responsibility of the state government and authorized institutions of higher education. Inservice teachers can apply credit for this short course to certificate change or renewal.—Norman L. Beach, *Dean, College of Education.*

Resources for Improving College Teaching in Population Studies

Interest in population education has increased rapidly in recent years and even more rapid growth can be expected if the recommendations of the Commission on Population Growth and the American Future are followed. The Commission argued that population education programs be established "so that present and future generations will be better prepared to meet the challenges arising from population change." But most attention has been directed to elementary and secondary school education and little systematic concern has been expressed about college-level instruction in population studies.

For most college and university instructors, population is an object for research, not for teaching concern. What interest has been expressed in demographic instruction has generally centered upon graduate education. For example, the two major professional associations in population studies, the Population Association of America and the International Union for the Scientific Study of Population, have recently conducted surveys of demographic teaching, but both limited their attention to matters of graduate teaching.

Slowly, this situation is changing. As the following review of current projects indicates, there has been serious interest expressed in developing new resources and strategies for undergraduate instruction. But most of these efforts have been *ad hoc* ones, involving the same small

group of individuals. What is now needed is the involvement of many concerned teachers from various disciplines and teaching settings who can direct their interests and talents to the improvement of undergraduate instruction in population studies. This would make a significant contribution to the general improvement of population education as the Commission urged, given the number of students presently enrolled in colleges and universities, the leadership roles generally assumed by these college graduates, and the specific mission of many colleges in preparing teachers for America's classrooms.

Several activities that have been conducted over the past several years do serve as a starting point for such expanded efforts. They include:

Training for college teachers. In the past two years, Summer Institutes in Social Demography and Population Policy were conducted at Cornell University. In 1971 the funding for the program was provided by the Population Council and in 1972 it was supported by the National Science Foundation. NSF has announced support for a third summer institute to be held at Lawrence University in 1973. These programs have provided intensive training to 60 college and junior college teachers from the social sciences and related fields, who are interested in developing courses in population studies at their institutions. For many schools these institutes provide the only resources for introducing materials on population into the curriculum.

On a more limited scale, the NSF-supported Chautauqua courses offered by AAAS include several on population or related subjects in each of its "circuits." Participants in these courses meet for two days of lectures and discussion, followed by three months of independent study, and then conclude with a two-day session of discussion and "wrap-up." Among the distinguished scientists offering these courses in 1972-73 are demographers Everett Lee and George Stolnitz.

"Teaching Notes on Population." A quarterly newsletter, "Teaching Notes on Population," has been developed to stimulate interest in undergraduate instruction in population studies and to serve as an exchange for information about teaching resources and strategies. The first two issues include review essays on textbooks and readers in population studies, classroom exercises, some reflections on issues in teaching, and various items on new materials. "Teaching Notes" is a cooperative effort of Lawrence University, Cornell University's International Population Program, and the National Council of Associations of International Studies through its Foreign Area Materials Center. Financial support is provided by the Population Council.

Development of curriculum materials. A modest beginning has been made toward the development of curriculum materials in population studies. A workshop for 20 college teachers was conducted at Cornell University last summer as an experiment in producing audiovisual materials suitable for undergraduate use. Materials are now being readied for testing and eventual distribution. As part of this effort, a series of conferences will be held in the spring to consider issues in the improvement of undergraduate education in population studies. The workshop and related activities are again joint efforts of Cornell's International Population Program and the National Council of Associations of International Studies and are supported by the Population Council.

Report of the Commission on Population Growth. In connection with the report prepared by the Commission on Population Growth and the American Future and the 60-minute film on the report to be released in January 1973, the Population Reference Bureau is preparing a teacher's guide for use at junior high, senior high, and undergraduate levels. The teacher's guide will include general materials on the report, bibliography, and activities for student use.

Other activities. An important assessment of population education for undergraduates has been undertaken by Terry Rogers and Laurie Baumann of the Bureau of Applied Social Research at Columbia University. They visited a number of academic institutions during the spring and their report will be ready in early 1973.

This list is not an exhaustive one, but it does indicate both the kinds of projects that are under way and the need for more extensive efforts in the future. For additional information on these activities or notification of other programs not discussed, please write to Parker G. Marden, Department of Sociology, Lawrence University, Appleton, Wisconsin 54911—Parker G. Marden.

Notes for Further Reading

In addition to publications listed in the reports of this issue, attention is called to

Social Education. April 1972, official journal of NCSS, devoted to population education. Available from the National Council for the Social Studies, 1201 16th Street, N.W., Washington, D.C. 20036. $1.50.

Science for Society: A Bibliography. Available from AAAS, 1515 Massachusetts Avenue, N.W., Washington, D.C. 20005. $1.00.

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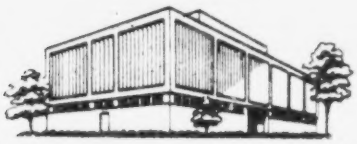

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Population Education at Weston High School

Biology at Weston (Massachusetts) High School has given strong emphasis to ecological concepts for five years or more. A team of teachers working with Lawrence A. Nilson has developed the approach which includes a study in dynamics of population. The population emphasis evolved from the BSCS Green Version approach toward a broader and deeper emphasis on human population dynamics.

The student feedback has generally been positive, including good suggestions for improvement. Weston High School has an excellent faculty and a large group of involved students engaged in some way or other in significant learning experiences. The area of biology was chosen because the introductory biology courses reach over 90 percent of the students. A special population study did not seem particularly different or special to most students although some did like particular aspects of it. There has been no special feedback from the community because the approach is not controversial.

For 1972-73 the work entitled *Ecology of Populations* is described in three main categories: (1) basic ecology—space requirement for life, 1-1/2 weeks; (2) field studies of producer populations, 1-1/2 weeks; (3) population dynamics—causes and effects, 3-4 weeks.

Basic ecology. The study of basic ecology begins by exploring some of the basic concepts in a consideration of space needs that living organisms have. Man, in addition to life-support requirements, has many desires which he considers important for satisfactory life. Therefore, a quality life requires a large amount and a great diversity of earth space. The basic ideas of producers and consumers, food-energy pyramids, and other ecological concepts are studied. The specific focus for understanding these concepts is how nitrogen fertilizers and certain types of insecticides increase the efficiency of our available agricultural space, but have also had some negative effects.

Field studies of producer populations. Sample plots in field or forest communities are the focus for studying the kinds, densities, and interrelations of the basic producer populations. The data are gathered along with some data on temperature, and light; and charts, graphs, and scatter diagrams are prepared. An attempt is made to find correlations to help explain the presence of certain producer populations and their influence on the community.

Population dynamics—causes and effects. The second half of the study is focused on the dynamics of animal population. During this time, the biology teachers function as one team. Each one is responsible for his own class, but he chooses an area of specialization for which he develops learning activities, supplies necessary materials and serves as a primary resource for other teachers. Students are sometimes given a special introduction for the activities by the responsible teacher. The learning environment is arranged so that during the teaching of the unit, a student can go to the room and to the resource person who will give him the specific help he needs. All of the teachers try to be available throughout the day. One teacher has general supervision of the unit with special responsibility for population explorations. Another has the responsibility for the laboratory activities and human population dynamics activities. The third has the responsibility of developing guide sheets to reading and visual activities. There is little formal teaching in this unit.

Three laboratories in the population chapter of the BSCS Green Version biology serve as focus for the first part of the study. Students, among other activities, are asked to graph data on various human populations gathered from almanacs and encyclopedias, and other data sources. Next come reading activities and sound film strips which focus on animal population studies and on human population growth: the causes and probable effects. During the last few weeks, all of the activities are carried out in class although each student is assigned a population exploration which is his independent project. The success of the unit depends on creating an open learning environment. The activities must be carefully and attractively prepared, and teachers must be available so that students can move at an appropriate pace on the basic activities and be available.

The staff considers the approach to provide a firm basis for further inquiries about populations and further exploration of the big questions of man and his environment.

Mr. Nilson, and others associated with the project, report that they have not prepared materials for distribution. It appears from their various reports that they have been so busy with innovations and providing for an individualized approach to an exceedingly important problem that they have been unable to find the time to prepare the materials for publication and use by others. However, some promise is given that this might be done for the future.—Abstracted from reports prepared by Lawrence A. Nilson.

References

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